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Ms. Kristin Hart
Section Chief
Wisconsin Department of Natural Resources
Bureau of Air Management
101 South Webster Street
P.O. Box 7921
Madison, WI 53707-7921

December 18, 2014

RE: Request for Extension of the Mercury and Air Toxics Standards (MATS) Compliance Deadline
Manitowoc Public Utilities FID NO.: 436035930
Boiler No. 9 (B09); Operation Permit NO.: 436035930-P23

Dear Ms. Hart:

Manitowoc Public Utilities (MPU) requests a one year extension of the Mercury and Air Toxics Standards (MATS) Compliance Deadline for MPU Boiler No. 9 (B09). Section 112(i)(3)(B) of the Clean Air Act (CAA) affords the opportunity for an individual existing source affected by a federal MACT standard to request an extension to their initial MACT compliance date by up to one year. The CAA authorizes Wisconsin, as a state with an approved Title V Program, to grant existing sources an additional year to comply with the promulgated April 16, 2015 deadline "if such additional period is necessary for the installation of controls."

Description of Installation

MPU is an electric cogenerating facility located in the city of Manitowoc Wisconsin. This plant includes two atmospheric pressure, circulating fluidized bed (CFB) boilers, designated as Boiler 8 (B28) and Boiler 9 (B09). Boiler 8 was installed in 1990, and is permitted to fire coal, petroleum coke, paper pellets, biomass, rubber waste derived fuels, natural gas (start-up and load stabilization), or other alternative fuels as approved by the Department. The Foster Wheeler Fluidized Bed Boiler is rated at 200,000 lbs. of superheated steam per hour at 900 psig and 905 degrees F. It is equipped with an economizer and air preheater and exhausts through a baghouse. Boiler 9 was installed in 2004, and is permitted to fire coal, petroleum coke, renewable biomass and natural gas (start-up and load stabilization). The Kvaerner/Mesto/Valmet Fluidized Bed Boiler is rated at 475,000 lbs. of superheated steam per hour at 1,500 psig and 1,005 degrees F. It is equipped with an economizer and air preheater and exhausts through a baghouse. The plant also includes Boiler B10, a natural gas-fired package boiler with a heat input rating of 33 mmBtu/hr. Boiler B10 does not have the ability to power the existing

MPU electrical steam turbines and only serves as an auxiliary boiler for the heating plant. Boiler B10 discharges into stack S10 along with Boiler 9 and diesel unit #2.

MATS Background

MPU was requested by the US EPA to participate in the Section 114 – ICR air emissions test program to provide extensive data to assist EPA with the development of the MATS rule. MPU completed the requested testing and submitted the data to the EPA and the WDNR (See report No. 3225 dated July 26, 2010). The primary fuel for Boiler 9 is petroleum coke and EPA used the MPU data to establish the solid oil (petroleum coke) standards for circulating fluidized bed (CFB) boilers and therefore Boiler B09 is considered a MATS "floor unit".

On March 16, 2011, EPA issued a proposed rule that would reduce emissions of toxic air pollutants from power plants. On December 16, 2011, EPA signed a rule to reduce emissions of toxic air pollutants from electric utility generating units (EGUs). On February 16, 2012 EPA published National Emission Standards for Hazardous Air Pollutants from Coal and Oil-Fired Electric Utility Steam Generating Units and Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-Commercial-Institutional, and Small Industrial-Commercial-Institutional Steam Generating Units. The final rule became effective on April 16, 2012. The rule is commonly referred to as the Mercury and Air Toxics Standards (MATS) or the EGU Boiler MACT rule and applies to new and existing coal and oil-fired EGUs.

- Boiler 10 is a heating boiler, commenced construction after June 4, 2010[1] and is considered a new source under the ICI Boiler MACT.
- Boiler 8 is not classified as an EGU[2], commenced construction before June 4, 2010[3], and therefore is considered an existing source under the ICI Boiler MACT.
- Boiler 9 is classified as an EGU and the unit is regulated under the Mercury and Air Toxics Standards (MATS).

MATS established subcategories for coal, IGCC, liquid oil, and solid oil-derived (pet coke) units. If an EGU burns coal or any combination of coal with another fuel where the coal accounts for more than 10.0 percent of the average annual heat input during any 3-consecutive calendar years or for more than 15.0 percent of the annual heat input during any one calendar year after the applicable compliance date, the unit is considered to be coal-fired under this final rule. Note: Boiler 9 burned 10% coal (heat input) in 2012, 13% coal in 2013 and is on a pace to burn 15% coal in 2014 and is therefore currently in the coal subcategory. Petroleum coke remains the primary fuel for Boiler 9 and coal usage could fall below 10% depending on the fuel mix the unit would then be classified as a solid oil unit.

Summary of the coal and solid oil (coke) emission standards for existing EGUs:

Type of unit	Filterable PM	HCl	Mercury
Coal Unit	0.030 lb/mmBtu	0.0020 lb/mmBtu	1.2 lb/TBtu
Solid Oil Unit	0.0080 lb/mmBtu	0.0050 lb/mmBtu	0.20 lb/TBtu

[1] Boiler B10 commenced construction on April 16, 2012 following receipt of the construction permit.
[2] EGU means Electrical Generating Unit and with these standards means a unit capable of delivering more than 25 MW of electricity for sale (i.e. net generation > 25MW). Boiler 8 nets ~22 MW and is therefore not an EGU and Boiler 9 nets ~58 MW and therefore is an EGU.
[3] The Boiler 8 CA was issued on 9/27/1988 and the ground breaking ceremony was held on 7/26/1989.

The MATS standard also provides alternate surrogate limits for HCl and PM. The alternate limit for HCl uses SO_2 as a surrogate and the alternate PM limit uses a defined list of non-mercury metals. Alternate limits are dependent on the type of unit and are summarized as follows:

Type of unit	SO_2 Alternate limit to HCl	Alternate limit for total non-mercury metals
Coal Unit	0.20 lb/mmBtu	5.0E-5 lb/mmBtu
Solid Oil Unit	0.30 lb/mmBtu	4.0E-5 lb/mmBtu

1. **Filterable PM**: MATS compliance options include the installation of a PM CEMs, PM continuous parametric monitoring system (PM CPMS), or quarterly stack testing. The Boiler 9 baghouse is the best available control technology (BACT) for PM control and should consistently meet the applicable limitations. The baghouse was designed to provide an operating margin to comply with a 0.03 lb/mmBtu total particulate limit. The current total PM limit is the same as the coal filterable MATS limit and stack test results for unit 9 are consistently in compliance. The solid oil PM was developed using MPU ICR data and although achievable, this limit will not have any compliance margin available in the event Boiler would become a solid oil unit. MPU approved the purchase of a SICK SP100 and this unit may be used as a PM CEMs or as a PM CPMS. The PM CPMS will demonstrate compliance with an operating limit and the PM CEMs will demonstrate compliance with the emission limit. Both systems utilize a 30-boiler operating day rolling average to determine compliance status. The PM CPMS is based on the highest 1-hour average measured during the most recent performance test demonstrating compliance with filterable PM. The PM CEMS measures actual filterable PM emissions based on a correlation curve established during stack testing. The SICK SP100 was installed in December, 2014 and the applicable DAS modifications were also completed by MPU contractors. Boiler 9 is currently off-line and the required correlation testing and certification procedures cannot be completed until MISO calls the unit into operation and the required work is scheduled.

2. **Mercury:** EGUs must use mercury CEMS or a sorbent trap system for continuous compliance monitoring except when provisions for low emitting EGUs (LEE) units apply. For an existing unit that you believe qualifies as LEE for Hg, you must conduct an initial Method 30B test over 30 days and follow the calculation procedures in the final rule to document a potential to emit less than 10 percent of the applicable Hg emissions limit or less than 29 pounds of Hg per year. The 30-day mercury test was completed this summer and the results indicate that Boiler 9 qualifies as a LEE unit. The measured mercury potential to emit was less than 10% of the applicable limits and the maximum emission rate of ~0.1 lbs per year is less than the 29 pound per year LEE limit. Unit 9 qualifies as a LEE for Hg as either a coal unit or as solid oil unit. MPU will conduct annual subsequent performance tests to demonstrate that the unit continues to qualify as a LEE unit. The mercury test report was submitted to the WDNR on December 5, 2014 and the electronic submittal of data to EPA is in progress.

3. **Hydrogen Chloride (HCl):** The solid oil HCl alternative limit was developed using MPU ICR data. The Boiler 9 coal heat input was actually 11.75% during the ICR testing and is similar to where the unit is operating today. ~80% of the heat input during the ICR testing was from petroleum coke and we believe EPA used the MPU data as representative of solid oil as it was the best data they had available. If Boiler 9 was a solid oil unit then compliance with the alternate SO_2 surrogate limit would be assured as this is the same limit the unit has for SO_2.

Boiler 9 consistently meets the SO_2 permit requirements as designed and currently averages ~0.25 lb SO_2/mmBtu well below the solid oil surrogate limit of 0.30 lb/mmBtu. If MPU continues to operate Boiler 9 as a coal unit demonstrating compliance with the lower alternate SO_2 surrogate limit would be very difficult and may not be practical or even possible with the current controls. Discussions with coal fired CFB units indicate that HCl CEMS and supplemental absorbent injection are required to comply with the MATS limit. We are actively pursuing the acquisition of an HCl CEMS. EPA has only issued final performance standards for the very costly FTIR CEM analyzer and the standards for other monitoring technologies are in draft. Facilities that proceed with the draft guidance could end up having to redo their system when EPA issues a final performance standard. In addition we have learned that HCl behaves differently than conventional pollutants and it is very difficult to complete a reliable daily calibration in a reasonable time. MPU will require the one year extension to get the controls and monitoring system fully functional. MPU will continue to operate Boiler 9 with SO_2 emissions controlled between the coal and solid oil surrogate limits.

If you have any questions regarding this request, or require additional information, please contact me.

Sincerely,

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